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10/757,849

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Gennadi Finkelshtain

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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/757,849  
Filing Date: January 16, 2004  
Appellant(s): FINKELSHTAIN ET AL.

\_\_\_\_\_  
Neil F. Greenblum and Stephen M. Roylance  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 12, 2008 appealing from the Office action mailed December 14, 2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,818,334	TSANG	11-2004
20020083643	AMENDOLA	07-2002

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 70-97, 99, 101-116, 119-130, and 132-143 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsang (US 6,818,334) in view of Amendola (US 20020083643).

Tsang teaches the production of two solutions, one comprising metal borohydride, water and alkali or alkaline earth metal hydroxide (NaOH or KOH) (solution A), the other comprising water and optional additives (solution B), which are then combined thus diluting each and which then forms a mixture used as a fuel in a fuel cell (see abstract; col. 1, line 42 through col. 2, line 34; col. 3, line 54 through col. 4, line 45). Tsang teaches that the optional additives may be alcohols, which are known anti-freeze agents, and other conventional additives (see col. 4, lines 1-9).

Tsang teaches that solution A and solution B are held in separate containers or compartments until they are mixed together (see col. 4, lines 62 to col. 5, lines 1-5).

Tsang teaches the limitations of the claims other than the differences that are discussed below.

In the first aspect, Tsang differs from the claims in that he does not specifically teach the claimed percentage of decomposition (not more than 2%). However, it would have been obvious to one of ordinary skill in the art to have selected proportions of the components within the limits disclosed to determine the workable range of decomposition. This would be especially true since Tsang is concerned that the fuel will become unstable during long-term storage.

In the second aspect, Tsang differs from the claims in that he does not specifically teach the claimed hydroxide ion concentration (pH). However, Amendola suggests that higher pH is more effective, as well as suggests starting with a concentrated solution and adding water during use (see paragraphs 32 and 33).

It would have been obvious to one of ordinary skill in the art to employ workable pH ranges while keeping in mind the intention of diluting and the desired generating output, as well as Amendola teaching that the higher pH helps stabilize the composition.

With respect to the claimed package or container, it would have been obvious to one of ordinary skill in the art at the time of the invention to package or contain the obvious storage stable concentrate along with a package or container containing the necessary solvent for obtaining the optimal fuel mixture and appropriate instructions because (1) such avoids problems of dosing the proper amounts of the two components by the end user; and (2) such avoids problems of dosing with impure solvent. Tsang clearly sets forth that these compositions are in separate packages or containers and that he mixes them to form the fuel. With respect to the package, the use of a one piece construction containing two compartments instead of the structure disclosed in

Art Unit: 1797

Tsang would be merely a matter of obvious engineering choice which would help to avoid the pitfalls set forth above.

#### **(10) Response to Argument**

Appellant argues that Tsang fails to teach a fuel concentrate for a direct liquid fuel cell and that the composition of Tsang merely serves as a source of hydrogen gas. Appellant argues that Tsang and Amendola are not drawn to a method of reducing the decomposition of a fuel for a direct liquid fuel cell.

In response to Appellant's arguments, the recitation for use as a fuel in a direct liquid fuel cell has not been given patentable weight. This language does not make a manipulative difference in the process of preparing a metal hydride solution. Tsang clearly teaches a metal borohydride concentrate that is diluted with water. Tsang therefore meets Appellant's objective of preparing a metal hydride containing liquid from a storage-stable concentrate.

Appellant argues that Amendola does not add anything to the disclosure of Tsang because a 40% alkali hydroxide or alkaline metal hydroxide solution as mentioned in Tsang can safely be assumed to have a pH of greater than 14.

The examiner recognizes that such would be the case; however, Amendola teaches why one skilled in the art would choose to select an amount of the hydroxide within the range taught by Tsang such that the pH of the composition is greater than 7.

Appellant argues that Tsang and Amendola both relate to operations on a very large industrial scale and that it would not have been obvious to employ containers that can be packaged together or separately.

The examiner finds no such teaching of an industrial scale process within the passage cited by Appellant. The mere mention of pumps metering the solutions from the containers to the reaction chamber does not imply an industrial scale process. If that were the case, a fuel pump in an automotive internal combustion engine would be considered an industrial scale process since the pump transfers and meters the gasoline from the fuel tank to the engine. The examiner respectfully disagrees with Appellant's interpretation of the cited passage. As stated above, Tsang teaches that the solutions are stored or packaged in separate containers until they are ready to be mixed.

Appellant argues that intended use implies certain characteristics of the fuel and concentrate that are of no importance with respect to a fuel which is used merely for the generation of hydrogen gas. Appellant argues that impurities and the additional components taught in Tsang would harm the fuel cell. Appellant argues that the catalyst of Tsang would produce an undesirable reaction because he prefers to use ruthenium, whereas Appellant states that platinum and palladium are the preferred catalyst for a direct liquid fuel cell.

Tsang teaches that the additional components are optional and therefore are not required to practice his invention. With respect to the catalyst, while it is true that Tsang prefers to use ruthenium as the catalyst, he also teaches that platinum is also a preferred catalyst (see col. 2, lines 60-66). Therefore, given the teachings of Tsang, impurities from the catalyst and additional components would not harm the fuel cell.

Appellant argues that Tsang fails to provide a combined container which comprises both a compartment for a concentrate and at least one compartment for a diluent.

With respect to the combined container package, the use of a one piece construction containing two compartments instead of the two container structure disclosed in Tsang would be merely a matter of obvious engineering choice which would help avoid improper dosing by the end user and insure that impurities do not contaminate the solvent. The skilled artisan would recognize that the containers of Tsang may be rearranged because rearranging the containers would not have modified the operation of the containers. The solution in the first container would still be mixed with the solution of the second container to produce hydrogen.

Appellant argues that that the containers of Tsang are for a large scale process. Appellant further argues that even if they were for a small scale process that it would not be an economical process because not enough hydrogen would be generated.

The examiner respectfully disagrees. There is nothing in Tsang to suggest that this process is for a large scale production. The presence of pumps and mechanical devices does not suggest the size of the production unit. Therefore, one could reasonable assume that no matter what scale the process may be, i.e., large scale or small scale, that enough hydrogen would be generated for the intended end use. Furthermore, Appellant has provided no data to support this argument.

Appellant argues that Tsang would not apply to claim 139 because Tsang does not teach using the container as a filling device for the fuel cell.



The examiner respectfully disagrees. Tsang teaches that the contents of the containers are mixed and that the gas produced from this mixture is used to fill the fuel cell. Therefore, Tsang does use the containers to fill a fuel cell.

Appellant argues that the fuel cell is portable. However, this argument is not persuasive because it is well settled that a claimed device being portable or movable is not sufficient to patentably distinguish over an otherwise old device unless there are new or unexpected results.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

//Cephia D. Toomer//

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